REMARKS

Claims 5 and 6 have been canceled above.

Claims 1, 9 and 10 were found objectionable because of the term “en route”. The Examiner stated this was a French language term, not an English language term. Applicants respectfully traverse this rejection based on the following. Applicants consulted an English-version Webster’s New Collegiate Dictionary Copyright 1981 by G&C. Merriam Co. and found an entry for “en route” meaning “on or along the way”. A copy of the applicable page in this Dictionary is enclosed.

Claims 1-4 and 7-10 were rejected under 35 USC 102 based on Navas (US Publication 2003/0026268). Applicants respectfully traverse this rejection based on the following.

Claim 1 recites a method for routing a datagram in an IP network. A datagram with a destination network address is received at a router. The router identifies a next hop router en route to or associated with the destination network address. The router determines whether or not transmission of the datagram on a link to the next hop router would result in a bandwidth usage exceeding a bandwidth threshold associated with the next hop router. If not, the router updates the bandwidth usage associated with the next hop router to account for the datagram, and transmits the datagram to the next hop router. If so, the router selects among other possible next hop routers en route to or associated with the destination address, another next hop router for which transmission of the datagram on a link to the other next hop router would not result in a bandwidth usage exceeding a bandwidth threshold associated with the other next hop router. The router updates the bandwidth usage associated with the other next hop router to account for the datagram, and transmits the datagram to the other next hop router.

The object of the present invention is to minimise network-usage billing where the billing is based on the current bandwidth threshold in effect for a router. The higher the current bandwidth threshold in effect for the router, the higher the bill. The present invention attempts to avoid causing a router to advance to a next higher bandwidth threshold by attempting to identify a router which can accommodate the datagram without exceeding its current bandwidth threshold. However, if no such router can be identified, then one of the routers will handle the datagram and have its bandwidth threshold increased. This is explained beginning on Page 21 of the present patent application and also the explanations of Figures 7, 8 and 9:

> "The pricing model of most Internet Service Providers divides the bandwidth in several contiguous intervals and associates a contractual price with each of these bandwidth intervals. For instance, on link l_i, a cost C^i_{th1} is associated with bandwidth interval 0-10 Mbps, a cost C^i_{th2} with interval 10-20 Mbps, a cost C^i_{th3} with interval 20-30 Mbps, etc. ... In the present example, the list bandwidth thresholds values for link l_i to next hop router NHi, comprises the following values : B^i_{th1} = 10 Mbps, B^i_{th2} = 20 Mbps, B^i_{th3} = 30 Mbps, etc. …
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> According to the present invention, at the beginning of the billing period, the current bandwidth thresholds of the links connecting the various next hop routers are initialized with the first value B^i_{th1} (10 Mbps) in the lists bandwidth thresholds. Up to the current bandwidth threshold B^1_{th1} (from 0 to 10 Mbps), a first next hop router (NH1) is used to route the datagrams. Once the current bandwidth for billing B^1_{bc} has reached this current bandwidth threshold B^1_{th1}(10 Mbps) with this first next hop router (NH1), a second next hop router (NH2) is used. However, the current bandwidth for billing B^2_{bc} of the link l_2 connecting this second next hop router NH2 must also be taken into account. If the current bandwidth threshold B^2_{th1} for this second next hop router NH2 is reached, the next hop router NH1 can be selected again until the second bandwidth threshold B^1_{th2} of NH1 (20 Mbps in the example) is reached and so on."

Navas discloses a technique to organise routing nodes into groups. This reduces the size of the routing tables required for interior routing nodes because they do not require complete routing tables. Only the "border" routing nodes for the group require complete routing tables. Navas also discloses control on the number of routers in each group to reduce the size of the routing tables at each node and to reduce the control traffic between nodes.

> "The size of each group would be regulated in step 805, such as by a system-wide maximum and minimum router node count. These thresholds could be varied depending on the network environment. For instance, when operating in a wireless network that is both resource-poor (i.e. - routing nodes with small amounts of memory such as random access memory (RAM) and bandwidth-poor, the thresholds could be set at a lower setting in order to reduce the size of the routing tables at each node and to reduce the control traffic between nodes. As routing nodes either join or leave the network, affected groups need to review their node memberships to determine if the group as a whole has exceeded either threshold. If the maximum node number threshold is surpassed, then the group is divided into two groups. If the minimum node number threshold is exceeded then the group is disbanded and the individual nodes are joined to ether adjacent groups."

Navas does not teach or even suggest selection of a next hop router based on its bandwidth utilization and the added bandwidth due to another datagram. Navas does not remotely teach or suggest the technique of claim 1 for minimizing billing by attempt to avoid causing a router to advance to a next higher bandwidth threshold by attempting to identify a router which can accommodate the datagram without exceeding its current bandwidth threshold.

Claims 2-8 depend on claim 1 and therefore distinguish over Navas for the same reasons that claim 1 distinguishes over Navas.

Independent claims 9 and 10 distinguish over Navas for the same reasons that independent claim 1 distinguishes over Navas.

Dependent claims 2, 11 and 12 further recite that if, among the other possible next hop routers, there is no other next hop router for which the transmission of the datagram on the respective link would result in the bandwidth usage being less than the respective bandwidth threshold, the router chooses among the other possible next hop routers, another next hop router. The router updates the bandwidth threshold associated with the other, chosen next hop router with a larger, predefined bandwidth threshold. This is not taught or even suggested by Navas.

Based on the foregoing, the present patent application as amended above, should be allowed.

Respectfully submitted,

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